

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER PROGRAMS COORDINATION
OFFICE OF SPILL RESPONSE AND REMEDIATION

Mail Address:
P.O. Box 10009
Richmond, VA 23240

Location:
629 East Main Street
Richmond, VA 23219

SUBJECT: Guidance Memorandum Number 02-2020
MTBE corrective action requirements

TO: Regional Directors

FROM: Larry Lawson, P.E., Director



DATE: November 20, 2002

COPIES: Ground Water Managers, J. Andrew Hagelin, Fred Cunningham, James Barnett

Summary

EPA Region III issued a Risk Based Concentration (RBC) table in April 2002 and, for the first time, treated MTBE as a possible carcinogen and provided a carcinogenic slope factor for this constituent. As a result of the information provided by Region III, the Storage Tank Program has clarified existing procedures for evaluating risks and performing corrective actions related to MTBE from leaking storage tank sites. Effective the date of this memorandum, staff should use this guidance to evaluate risks from MTBE and require corrective actions to deal with MTBE. This guidance will be incorporated into the next edition of the Storage Tank Program Technical Manual.

Contact Information

Should you have any questions or need further assistance on this guidance, please contact:

James Barnett (804) 698-4289

jsbarnett@deq.state.va.us

Disclaimer

This document provides procedural guidance to the DEQ Storage Tank Program staff. This document is guidance only. It does not establish or affect legal rights or obligations. It does not establish a binding norm and is not finally determinative of the issues addressed. Agency decisions in any particular case will be made by applying the State Water Control Law and the implementation regulations on the basis of site-specific facts.

Introduction

Methyl tertiary butyl-ether (MTBE) has received much attention within the environmental community and media since the mid-1990s. Despite this attention and numerous studies, uncertainty still exists regarding the carcinogenic nature of this constituent and EPA has not determined if MTBE should be considered a probable human carcinogen.

EPA Region III issued their most current Risk Based Concentration (RBC) table in April 2002. Region III, for the first time, treated MTBE as a possible carcinogen and provided a carcinogenic slope factor for this constituent. Consideration of MTBE as a possible carcinogen reduced the drinking water RBC for this constituent from 6300 ug/l to 2.6 ug/l.

According to toxicology staff at Region III, the carcinogenic slope factor for MTBE is from a 1997 EPA Drinking Water document. The slope factor, however, has not been peer reviewed by EPA nor has it been placed as a peer accepted value in EPA's Integrated Risk Information System (IRIS) database.

The RBC table has no regulatory standing nor is the table official Region III guidance. Rather, the table is intended as a simple tool that EPA staff may use when screening a site during a baseline risk assessment. A published EPA concentration for MTBE in drinking water of 2.6 ug/l, regardless its intent or context, is very likely to further sensitize the MTBE issue. Questions have arisen at DEQ regarding how this new risk based concentration and slope factor should be used by Storage Tank Program staff.

MTBE Remedial Endpoints

Remedial endpoints used by the Storage Tank Program are site-specific and risk-based. The preferred corrective action at petroleum release sites is to prevent petroleum from reaching drinking water supplies. Models often are used to predict the transport and fate of chemicals in the environment and aid with the development of remedial endpoints. The cleanup or remedial goal for drinking water supplies is no impact; therefore, the MTBE concentration should be set at zero at water supply well locations and the intake for surface water supplies. If staff believe that present clean up methods cannot successfully prevent petroleum from reaching a water supply well or the surface water intake for a water supply, alternative corrective actions, including the provision of an alternate water supply, must be evaluated.

MTBE also may pose risks via the inhalation and dermal contact exposure pathways. In order to maximize protection of humans who may be exposed to MTBE, it is recommended that staff, tank owners/operators, and consultants assessing risks from MTBE via inhalation or dermal contact use the carcinogenic potency slopes listed in the EPA Region III Risk Based Concentration Table until peer reviewed risk information for this constituent become available.

MTBE in Private Water Supply Wells

The Storage Tank Program already has a zero tolerance practice for petroleum constituents in private drinking water supplies. If a petroleum constituent is found in the private water supply at any concentration, the Storage Tank Program offers the owner of that supply a filtration system and attempts to find that person a petroleum free alternate water supply. The change in the RBC for MTBE, therefore, will not change how DEQ deals with MTBE in private water supply wells.

MTBE in Public Water Supply Wells

The Virginia Health Department regulates public water supplies. Operators of public water supplies are required to test water in these systems on a routine basis and report these results to the local government. Localities are required to notify DEQ and the Health Department if the MTBE concentration in a public water supply exceeds 15 ug/l. The Health Department's present health advisory level for MTBE in drinking water is 20 ug/l.

The DEQ generally will provide an alternate water supply or other assistance to the operator of a public water supply when: (1) the water supply is contaminated by petroleum constituents; (2) the concentration of one or more petroleum constituents exceeds the Virginia Health Department's standards for public drinking water supplies; and (3) the petroleum constituents are the primary constituents of concern in that water supply. The DEQ generally does not provide alternate water supply assistance to public water supply operators if MTBE concentrations in the water supply are below the Health Department advisory of 20 ug/l.

NOTE: Assistance to operators of public water supplies is limited to those supplies contaminated by releases from storage tanks. In the absence of site specific information to the contrary, the DEQ generally assumes that leaking storage tanks are the sources of MTBE in ground water.

The Virginia Health Department has been notified of the new EPA Region III RBC for MTBE. The DEQ Storage Tank Program will continue to use the Health Department's Advisory for MTBE as the threshold for providing assistance to operators of public water supplies. If the Virginia Health Department reduces the MTBE advisory level to below 20 ug/l, the DEQ Storage Tank Program may provide assistance to a larger number of public water supply operators.

MTBE in Surface Waters that are Public Water Supplies

There is a possibility that operators of surface water derived drinking water systems may find MTBE in their systems. Existing evidence suggests that MTBE may find its way into surface waters via a variety of sources other than leaking storage tanks. As with public water supply wells, the DEQ may provide assistance to operators of public water supplies derived from surface waters if the MTBE concentration in the water supply exceeds the Virginia Health Department's advisory level and a storage tank is believed to be the source of contamination. The Storage Tank Program considers the intake point of the public water supply to be the location at which petroleum constituents should not exceed Health Department MCLs or advisories.

Given the evidence that MTBE may reach surface water from sources other than storage tanks, the DEQ must consider the possible sources of the MTBE. If the MTBE appears to have originated from a storage tank release, the DEQ may provide assistance to the operator of the water supply. Conversely, if the MTBE appears to be from sources other than a leaking storage tank, the DEQ will not be able to use VPSTF monies to assist the operator of the water supply system.